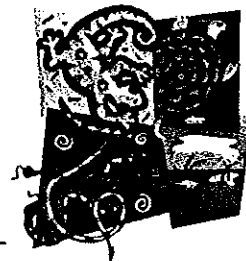


Connecticut Ecosystems LLC

- Wetland Delineation • Wetland & Aquatic Evaluation • Mitigation
- Natural Resource Inventory • Permit Assistance • Expert Testimony



April 16, 2004

HRP Associates, Inc.
Attn.: Mr. Joe Magdol
167 New Britain Avenue
Plainville, CT 06062

**Re: Middletown High School
Middletown, CT
CE Job# 01-400**

Dear Joe:

At your request on April 9, 2004 I inspected selected wetlands for the above-referenced project. The purpose of the inspection was to determine whether any of these wetlands are vernal pools. Wetland numbers in this correspondence match those used in the Wetlands Report that I prepared in support of this project.

A DEP Task Force has provided the following draft definition of a vernal pool:

"Vernal pool means a seasonal watercourse in a defined depression or basin, that lacks a fish population and supports or is capable of supporting breeding and development of amphibian or invertebrate species recognized as obligate to such watercourses. These species include spotted salamander, Jefferson salamander complex, marbled salamander, wood frog, and fairy shrimp."

Methods

I inspected the wetlands at a time of year when wood frog and spotted salamander egg masses, if present, would be visible. Thus, I conducted a thorough search for egg masses of these and other obligate vernal pool species. I also dip netted the shallow waters in these wetlands, searching for invertebrates and amphibian larvae. Data sheets are provided in Appendix 1. Color photographs of the wetlands are included with this correspondence.

Results

The results of this investigation are summarized in Table 1. Four vernal pools were identified on the subject property.

04-12

Please do not hesitate to contact me if you have any questions regarding this correspondence.

Very truly yours,

Connecticut Ecosystems LLC

A handwritten signature in black ink, appearing to read "E.M. Pawlak", written in a cursive style.

Edward M. Pawlak
Registered Soil Scientist
Certified Professional Wetland Scientist

Table 1. Site Inspection Notes					
Wetland #	Maximum Water Depth (in.)	Egg Masses		Is this wetland a vernal pool?	Notes
		Spotted Salamander	Wood Frog		
3	8	0	25-30	Yes	Water quality impaired by turbid brown water in pool.
4	12	1	60+	Yes	Large mega-mass precluded an exact count of egg masses.
5	17	0	40-50	Yes	
6	1	0	0	No	
7	5	0	0	No	
8	9	0	10	Yes	
9	5	0	0	No	
1B	7	0	0	No	This depression is located near flag 12-25
1B	5	0	0	No	This depression is located near flag 11-62

POTENTIAL VERNAL POOL DATA SHEET

Wetland #18

Inspector(s): Pawlak

Date: 4/9/04

Site: Middleton H.S. (near flag 11-62)

Start:

Stop:

Weather: today: Cloudy 60°F recent: Heavy rain last wk

Methods: dip net ☒ cover search ☐ egg mass count ☒ other ☐

Photograph(s): 1245(6) - looking S from near flag 11-62
1249(6) - looking N from near flag 11-62 Pool Size: ' x ' 20' diam

Water Depth: maximum 5 " average " color turbid brown pH

Sphagnum moss hummocks present? N

Egg-Laying Substrate: branches ☒ fallen logs ☐ herbaceous leaves ☐ other ☐

Canopy: 0-25% closed ☒ 26-50% closed ☐ 51-75% closed ☐ >75% closed ☐

Shrubs in pool: blueberry ☐ pepperbush ☐ buttonbush ☐ others None

Wetland Type: deciduous wooded swamp ☒ shrub swamp ☐ other marsh

100' VP Envelope Land Use (%): woods 50 field ☐ shrub ☐ developed 50 other ☐

Landscape Position: hilltop ☐ bottomland ☒ other ☐

Inlet? N Outlet? N Finfish observed? N

Amphibians None

Egg Mass #: spotted salamander ☐ wood frog ☐ other ☐

Larvae: spotted salamander ☐ marbled salamander ☐ wood frog ☐ other ☐

Adults: spotted salamander ☐ wood frog ☐ spring peeper ☐

Adults: spotted salamander ☐ wood frog ☐ spring peeper ☐

newt ☐ green frog ☐ other ☐

Other vertebrates: spotted turtle ☐ other ☐

Invertebrates: fairy shrimp ☐ amphipods ☐ mosquitoes ☐ Hemiptera ☐

Coleoptera ☐ blood worms ☐ caddisflies ☐

finger nail clams ☐ other ☐

Is this wetland a vernal pool?

Notes: N and is dry (no surface H₂O) //

POTENTIAL VERNAL POOL DATA SHEET

Wetland #1B

Inspector: Pawlak Date: 4/9/04 Site: Muddy Run H.S. (U 12-25) Start: Stop:

Weather: Today: Cloudy 60°F Recent: Heavy rain last wk

Methods: Dip Net ☒ Cover Search ☐ Egg Mass Count ☒ Other ☐

Photograph(s) 1246 (6)

Water: Maximum Depth 7 Color clear pH

Sphagnum Hummocks? N

Substrate: branches ☒ fallen logs ☒ herbaceous leaves ☐ other ☐

Canopy: 0-25% closed ☒ 26-50% closed ☐ 51-75% closed ☐ >75% closed ☐

Shrubs in pool: blueberry ☐ pepperbush ☐ buttonbush ☒ others Silky dogwood

Wetland Type: deciduous wooded swamp ☒ shrub swamp ☐ other ☐

Watershed: Slopes: gentle ☒ moderate ☐ steep ☐
Land Use: wooded ☒ field ☐ shrub ☐ developed ☒

Landscape Position: hilltop ☐ bottomland ☒ other ☐

Inlet? ☒ Outlet? ☒

Amphibian Eggs: spotted salamander ☐ wood frog ☐ other ☐
Larvae: spotted salamander ☐ marbled salamander ☐
wood frog ☐ other green or bull frog
Adults: spotted salamander ☐ wood frog ☐ spring peeper ☐
red spotted newt ☐ green frog ☐ other ☐

Other Vertebrates: spotted turtle ☐ other ☐

Invertebrates: fairy shrimp ☐ amphipods ☒ mosquitoes ☐ Hemiptera ☐
Coleoptera ☐ blood worms ☐ caddisflies ☐
fingernail clams ☐ other ☐

Is this wetland a vernal pool? ☒
Notes: Spring Peepers calling / 1st time heard perched in tree above pool

POTENTIAL VERNAL POOL DATA SHEET

Wetland #3

Inspector(s): Pawlak
 Date: 4/9/04 Site: Middleton H.S. (9-12) Start: _____ Stop: _____

Weather: today: Cloudy 60°F recent: heavy rain last week

Methods: dip net _____ cover search _____ egg mass count ☒ other _____

Photograph(s): (242(6)) Pool Size: 6 ' x _____ ' 15' diam

Water Depth: maximum 8 " average _____ " color turbid brown pH _____

Sphagnum moss hummocks present? No

Egg-Laying Substrate: branches ☒ fallen logs ☒ herbaceous leaves _____ other _____

Canopy: 0-25% closed _____ 26-50% closed _____ 51-75% closed _____ >75% closed ☒

Shrubs in pool: blueberry _____ pepperbush _____ buttonbush _____ others None

Wetland Type: deciduous wooded swamp ☒ shrub swamp _____ other _____

100' VP Envelope Land Use (%): ^{hard} woods 100 field _____ shrub _____ developed _____ other _____

Landscape Position: hilltop _____ bottomland ☒ other _____

Inlet? ☒ Outlet? ☒ Finfish observed? _____

Amphibians

Egg Mass #: spotted salamander _____ wood frog 25-30 other _____

Larvae: spotted salamander _____ marbled salamander _____ wood frog _____ other _____

Adults: spotted salamander _____ wood frog _____ spring peeper _____

Adults: spotted salamander _____ wood frog _____ spring peeper _____

newt _____ green frog _____ other _____

Other vertebrates: spotted turtle _____ other _____

Invertebrates: fairy shrimp _____ amphipods _____ mosquitoes _____ Hemiptera _____

Coleoptera _____ blood worms _____ caddisflies _____

fingernail clams _____ other _____

Is this wetland a vernal pool? Yes

Notes: brown suspended sediments impairing H₂O quality!

POTENTIAL VERNAL POOL DATA SHEET

Wetland #4

Inspector(s): Pawlak
 Date: 4/9/04 Site: Middleton A.S. (W 8-) Start: Stop:
 Weather: today: Cloudy 60°F recent: heavy rain last week
 Methods: dip net ☒ cover search ☐ egg mass count ☒ other ☐
 Photograph(s): (24) (6) Pool Size: ' x ' ≈ 50' diam
 Water Depth: maximum 12 " average " color clear pH
 Sphagnum moss hummocks present? No
 Egg-Laying Substrate: branches ☒ fallen logs ☐ herbaceous leaves ☐ other ☐
 Canopy: 0-25% closed ☐ 26-50% closed ☐ 51-75% closed ☐ >75% closed ☒
 Shrubs in pool: blueberry ☐ pepperbush ☐ buttonbush ☒ others ☐
 Wetland Type: deciduous wooded swamp ☒ shrub swamp ☐ other ☐
 100' VP Envelope Land Use (%): ^{wood} woods 100 field ☐ shrub ☐ developed ☐ other ☐
 Landscape Position: hilltop ☐ bottomland ☒ other ☐
 Inlet? N Outlet? N Finfish observed? N
 Amphibians
 Egg Mass #: spotted salamander 1 wood frog 60+ other ☐
 Larvae: spotted salamander ☐ marbled salamander ☐ wood frog ☐ other ☐
 Adults: spotted salamander ☐ wood frog ☐ spring peeper ☐
 Adults: spotted salamander ☐ wood frog ☐ spring peeper ☐
 newt ☐ green frog ☐ other ☐
 Other vertebrates: spotted turtle ☐ other ☐
 Invertebrates: fairy shrimp ☐ amphipods ☐ mosquitoes ☐ Hemiptera ☐
 Coleoptera ☐ blood worms ☐ caddisflies ☐
 fingernail clams ☐ other ☐
 Is this wetland a vernal pool? Yes
 Notes: large meg-mass of wood frog eggs made an exact count impossible

POTENTIAL VERNAL POOL DATA SHEET

Wetland #5

Inspector(s): Pawlak
 Date: 4/9/04 Site: Middlebrook H.S. (7-6) Start: Stop:
 Weather: today: Partly cloudy 60°F recent: Heavy rain last week
 Methods: dip net ☒ cover search ☐ egg mass count ☒ other ☐
 Photograph(s): 1240(6) Pool Size: 60 ' x 30 '
 Water Depth: maximum 17 " average " color clear pH
 Sphagnum moss hummocks present? NO
 Egg-Laying Substrate: branches ☒ fallen logs ☐ herbaceous leaves ☐ other ☐
 Canopy: 0-25% closed ☐ 26-50% closed ☐ 51-75% closed ☒ >75% closed ☐
 Shrubs in pool: blueberry ☐ pepperbush ☐ buttonbush ☐ others None
 Wetland Type: deciduous wooded swamp ☒ shrub swamp ☐ other ☐
 100' VP Envelope Land Use (%): ^{hard} woods 100 field ☐ shrub ☐ developed ☐ other ☐
 Landscape Position: hilltop ☐ bottomland ☒ other ☐
 Inlet? ☒ Outlet? ☒ Finfish observed? ☒
 Amphibians
 Egg Mass #: spotted salamander ☐ wood frog 40-50 other ☐
 Larvae: spotted salamander ☐ marbled salamander ☐ wood frog ☐ other ☐
 Adults: spotted salamander ☐ wood frog ☐ spring peeper ☐
 Adults: spotted salamander ☐ wood frog ☐ spring peeper ☐
 newt ☐ green frog ☐ other ☐
 Other vertebrates: spotted turtle ☐ other ☐
 Invertebrates: fairy shrimp ☐ amphipods ☒ mosquitoes ☐ Hemiptera ☐
 Coleoptera ☐ blood worms ☐ caddisflies ☐
 fingernail clams ☐ other ☐
 Is this wetland a vernal pool? Yes
 Notes:

POTENTIAL VERNAL POOL DATA SHEET

Wetland #6

Inspector(s): Pawlak
 Date: 4/9/09 Site: Middleton H.S. (6-M) Start: Stop:
 Weather: today: Partly cloudy 60°F recent: Heavy rain last week
 Methods: dip net _____ cover search _____ egg mass count ☒ other _____
 Photograph(s): 1239(6) Pool Size: _____' x _____', 10' diam.
 Water Depth: maximum 1" average 1" color _____ pH _____
 Sphagnum moss hummocks present? NO
 Egg-Laying Substrate: branches _____ fallen logs ☒ herbaceous leaves _____ other _____
 Canopy: 0-25% closed _____ 26-50% closed _____ 51-75% closed _____ >75% closed ☒
 Shrubs in pool: blueberry _____ pepperbush _____ buttonbush _____ others None
 Wetland Type: deciduous wooded swamp ☒ shrub swamp _____ other _____
 100' VP Envelope Land Use (%): woods 100 field _____ shrub _____ developed _____ other _____
 Landscape Position: hilltop _____ bottomland ☒ other _____
 Inlet? N Outlet? N Finfish observed? N
 Amphibians None
 Egg Mass #: spotted salamander _____ wood frog _____ other _____
 Larvae: spotted salamander _____ marbled salamander _____ wood frog _____ other _____
 Adults: spotted salamander _____ wood frog _____ spring peeper _____
 Adults: spotted salamander _____ wood frog _____ spring peeper _____
 newt _____ green frog _____ other _____
 Other vertebrates: spotted turtle _____ other _____
 Invertebrates: fairy shrimp _____ amphipods _____ mosquitoes _____ Hemiptera _____
 Coleoptera _____ blood worms _____ caddisflies _____
 fingernail clams _____ other _____
 Is this wetland a vernal pool? No
 Notes:

POTENTIAL VERNAL POOL DATA SHEET

Inspector(s): Pawlak Wetland # 7
Date: 4/9/04 Site: Middleton H.S. (S-W) Start: Stop:

Weather: today: Partly cloudy 60°F recent: Heavy rain last week

Methods: dip net ☒ cover search ☐ egg mass count ☒ other ☐

Photograph(s): 1230(6) Pool Size: _____' x _____', 30' diam

Water Depth: maximum 5" average 5" color clear pH _____

Sphagnum moss hummocks present? No

Egg-Laying Substrate: branches ☒ fallen logs ☒ herbaceous leaves ☐ other ☐

Canopy: 0-25% closed ☐ 26-50% closed ☐ 51-75% closed ☐ >75% closed ☒

Shrubs in pool: blueberry ☐ pepperbush ☐ buttonbush ☐ others None

Wetland Type: deciduous wooded swamp ☒ shrub swamp ☐ other ☐

100' VP Envelope Land Use (%): woods 80 field ☐ shrub ☐ developed ☐ other 100% 20%

Landscape Position: hilltop ☐ bottomland ☒ other ☐

Inlet? ☒ Outlet? ☒ Finfish observed? ☒

Amphibians None

Egg Mass #: spotted salamander ☐ wood frog ☐ other ☐

Larvae: spotted salamander ☐ marbled salamander ☐ wood frog ☐ other ☐

Adults: spotted salamander ☐ wood frog ☐ spring peeper ☐

Adults: spotted salamander ☐ wood frog ☐ spring peeper ☐

newt ☐ green frog ☐ other ☐

Other vertebrates: spotted turtle ☐ other ☐

Invertebrates: fairy shrimp ☐ amphipods ☒ mosquitoes ☐ Hemiptera ☐

Coleoptera ☐ blood worms ☒ caddisflies ☐

fingernail clams ☐ other ☐

Is this wetland a vernal pool? No

Notes: Brown leaves cover pool surface

POTENTIAL VERNAL POOL DATA SHEET

(Wetland #8)

Inspector(s): Pawlak

Date: 4/9/04 Site: Middleton H.S. (4- Wetland) Start: Stop:

Weather: today: Cloudy recent: 60°F

Methods: dip net ☒ cover search ☐ egg mass count ☒ other ☐

Photograph(s): 1237 (6) Pool Size: 30' x 30'

Water Depth: maximum 9" average 6" color clear pH

Sphagnum moss hummocks present? NO

Egg-Laying Substrate: branches ☒ fallen logs ☒ herbaceous leaves ☐ other ☐

Canopy: 0-25% closed ☐ 26-50% closed ☐ 51-75% closed ☐ >75% closed ☒

Shrubs in pool: blueberry ☐ pepperbush ☐ buttonbush ☐ others None

Wetland Type: deciduous wooded swamp ☒ shrub swamp ☐ other ☐

100' VP Envelope Land Use (%): ^{hard} woods ☒ field ☐ shrub ☐ developed ☐ other ☐

Landscape Position: hilltop ☐ bottomland ☒ other ☐

Inlet? N Outlet? N Finfish observed? N

Amphibians

Egg Mass #: spotted salamander ☐ wood frog 10 other ☐

Larvae: spotted salamander ☐ marbled salamander ☐ wood frog ☐ other ☐

Adults: spotted salamander ☐ wood frog ☐ spring peeper ☐

Adults: spotted salamander ☐ wood frog ☐ spring peeper ☐

newt ☐ green frog ☐ other ☐

Other vertebrates: spotted turtle ☐ other ☐

Invertebrates: fairy shrimp ☐ amphipods ☐ mosquitoes ☐ Hemiptera ☐

Coleoptera ☐ blood worms ☐ caddisflies ☐

fingernail clams ☐ other ☐

Is this wetland a vernal pool? Yes

Notes:

POTENTIAL VERNAL POOL DATA SHEET

Wetland #9

Inspector(s): Pawlak
 Date: 4/9/04 Site: Middleton H.S. (W 3-7) Start: _____ Stop: _____

Weather: today: Cloudy 60°F recent: Heavy rain last wk.

Methods: dip net ☒ cover search _____ egg mass count ☒ other _____

Photograph(s): 1243 (6) Pool Size: 30 ' x 20 '

Water Depth: maximum 5 " average _____ " color clear pH _____

Sphagnum moss hummocks present? No

Egg-Laying Substrate: branches ☒ fallen logs ☒ herbaceous leaves _____ other _____

Canopy: 0-25% closed _____ 26-50% closed _____ 51-75% closed _____ >75% closed ☒

Shrubs in pool: blueberry _____ pepperbush _____ buttonbush _____ others None

Wetland Type: deciduous wooded swamp ☒ shrub swamp _____ other _____

100' VP Envelope Land Use (%): woods 60 field _____ shrub _____ developed _____ other grass 40

Landscape Position: hilltop _____ bottomland ☒ other _____

Inlet? ☒ Outlet? ☒ Finfish observed? _____

Amphibians None

Egg Mass #: spotted salamander _____ wood frog _____ other _____

Larvae: spotted salamander _____ marbled salamander _____ wood frog _____ other _____

Adults: spotted salamander _____ wood frog _____ spring peeper _____

Adults: spotted salamander _____ wood frog _____ spring peeper _____

newt _____ green frog _____ other _____

Other vertebrates: spotted turtle _____ other _____

Invertebrates: fairy shrimp _____ amphipods _____ mosquitoes _____ Hemiptera _____

Coleoptera _____ blood worms _____ caddisflies _____

fingernail clams _____ other _____

Is this wetland a vernal pool? No

Notes:



Photo 1. Wetland 1B, looking north from near flag 11-62



Photo 2. Wetland 1B, looking south from near flag 11-62



Photo 3. Wetland 1B, depression near flag 12-25



Photo 4. Wetland #3



Photo 5. Wetland #4



Photo 6. Wetland #5



Photo 7. Wetland #6



Photo 8. Wetland #7



Photo 9. Wetland #8



Photo 10. Wetland #9